

REMARKS/DISCUSSION OF ISSUES

Claims 1-20 are pending in the application. Applicants have amended claims 1 and 13 for non-statutory reasons to provide better grammatical comprehension. The claims are not narrowed in scope and no new matter is added.

OBJECTIONS TO DRAWINGS

On 19 August 2003, the undersigned attorney for Applicants telephoned the Examiner to discuss the Objections to the Drawings (Interview Summary Attached). Applicants thank the Examiner for the courtesy of that brief telephonic discussion. During that discussion, it was the Examiner indicated that all objections to the drawings would be overcome if Applicants: (1) revised FIG. 2B to add shading to more clearly indicate the dielectric layers 27, 28 and 29 described in the specification at page 5, lines 2-9; and (2) revised FIG. 2C to delete reference numerals 27, 28 and 29.

Accordingly, Applicants have revised FIG. 2B to add shading to more clearly indicate the dielectric layers 27, 28, and 29, and revised FIG. 2C to delete reference numerals 27, 28 and 29.

Therefore, Applicants respectfully submit that the Drawings are fully in compliance with 37 C.F.R. § 1.83(a).

Accordingly, Applicants respectfully request that the Examiner withdraw the objection to the Drawings.

35 U.S.C. § 103

Claims 1-12

The Office Action dated 20 May 2003 rejected claims 1-12 over Ng.

Among other things, the capacitor of claim 1 includes:

"a plurality of vias arranged in a plurality of groups, each group corresponding uniquely to one of the coplanar line pairs and each group including at least two vias connecting the first level line and the

second level line of the corresponding line pair”

In the device of claim 1, the vias are arranged into a plurality of groups, each group corresponding uniquely to one of the coplanar line pairs.

In contrast, in the device of FIG. 8 of Ng, cited in the Office Action, the plurality of vias 230 does not include any group of at least two vias that corresponds uniquely to any of the coplanar line pairs. Indeed, as can be more easily seen in FIG. 11, in the device disclosed by Ng the vias are provided exclusively at the interconnecting electrodes 210, 220, etc. and never at the first level lines 211 or 221. None of the vias corresponds uniquely to any of the line pairs 211/221.

Furthermore, each of these groups includes at least two vias connecting the first level line and the second level line of the corresponding line pair. That is, the first and second level lines of each line pair are connected by a unique, corresponding group of at least two vias. Since the capacitor of claim 1 has at least four line pairs, there are at least four groups of at least two vias each (total of eight vias) for the four line pairs.

The Office Action does not mention this feature of claim 1 (each group including at least two vias).

Indeed, no such feature is disclosed or suggested by Ng. As conceded in the Office Action, Ng's device has only a total of six vias for four line pairs. Therefore, it cannot have four unique, corresponding groups of at least two vias each for the four line pairs (total of at least eight vias for four line pairs). Indeed, as can be more easily seen in FIG. 11, the device disclosed by Ng, with the vias exclusively provided at the interconnecting electrodes 210, 220, etc. and never at the first level lines 211 or 221, lacks a sufficient number of vias to ever provide the benefits of the capacitor of claim 1.

As explained in the previous Amendments filed in connection with this application, this is not a mere design choice, as Applicants have discovered that such a feature improves the capacitor effect of the structure.

Accordingly, for at least these reasons, Applicants respectfully submit that

claim 1 is patentable over Ng.

Claims 2-12, dependent from claim 1, are deemed patentable for at least the same reasons.

Claims 13-17

At the outset, although the Office Action states that claims 13-17 are rejected "for reasons of record, as recited in previous office action," Applicants respectfully note that claims 13-20 were only first added in the previous Amendment filed on 21 April 2003, and have never been subject to any previous Office Action in connection with this application.

Among other things, the capacitor of claim 13 includes a plurality of groups of vias, each group corresponding to one of the line pairs and each group including a plurality of vias directly connecting the first level line and the second level line of the corresponding line pair.

No such feature is disclosed or suggested by Ng. In FIG. 8 of Ng, cited in the Office Action, NONE of the plurality of vias 230 directly connect a first level line 211 and a second level line 221 of any corresponding line pair. Indeed, as can be more easily seen in FIG. 11, in the device disclosed by Ng the vias 230 directly connect the first and second level electrodes 210 and 220, but they do not directly connect first level lines 211 and second level lines 221.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 13 is patentable over Ng.

Claims 14-17, dependent from claim 13, are deemed patentable for at least the same reasons, and for the following additional reasons.

Claim 16

In the device of claim 16, each group of vias corresponding to one line pair includes four vias.

The Office Action maintains that such a feature is shown in FIG. 8 of Ng.

Respectfully, how is that possible? According to claim 16, there are four groups of vias having four vias in each group. That is a total of sixteen vias connecting the first and second level lines. Clearly, FIG. 8 of Ng shows only 12 vias

between levels, and that is for a total of eight line pairs. For each set of four line pairs, the device of Ng provides only six vias, not the sixteen vias of claim 16.

Accordingly, for at least these additional reasons, Applicants respectfully submit that claim 16 is patentable over Ng.

Claim 17

Among other things, the capacitor of claim 17 includes a plurality of groups of vias, wherein each group includes: a first via directly connecting the first level line and the second level line of the corresponding line pair at respective first ends of the first and second level lines, and a second via directly connecting the first level line and the second level line of the corresponding line pair at respective second ends of the first and second level lines, wherein the second ends are opposite the first ends along the first direction.

No such feature is disclosed or suggested by Ng. In FIG. 8 of Ng, cited in the Office Action, the vias 230 are at the first and second level electrodes 210 and 220, and they are not at respective first and second ends of the first level lines 211 and second level lines 221.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 17 is patentable over Ng.

Claim 18-20

At the outset, although the Office Action states that claims 18-20 are rejected "for reasons of record, as recited in previous office action," Applicants respectfully note that claims 18-20 were only first added in the previous Amendment filed on 21 April 2003, and have never been subject to any previous Office Action in connection with this application.

Among other things, the capacitor of claim 18 includes a plurality of groups of vias, each group including a plurality of vias extending directly between the first level line and the second level line of a line pair. No such feature is disclosed or suggested by Ng. In FIG. 8 of Ng, cited in the Office Action, NONE of the plurality of vias 230 extend directly between a first level line 211 and a second level line 221 of any line pair. Indeed, as can be more easily seen in FIG. 11, in the device disclosed

by Ng, the vias are exclusively provided at the interconnecting electrodes 210, 220, etc. and never extend to any of the first level lines 211 or 221.

Therefore, contrary to the statement in the Office Action, FIG. 8 of Ng does not disclose any plurality of vias that extend directly between the first level line 211 and the second level line 221.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 18 is patentable over Ng.

Claims 19-20, dependent from claim 18, are deemed patentable for at least the same reasons, and for the following additional reasons.

Claim 20

In the device of claim 20, at least four vias extend directly between each first level line and corresponding second level line of a line pair.

The Office Action maintains that such a feature is shown in FIG. 8 of Ng.

Applicants respectfully disagree. Indeed, Applicants respectfully submit that no such feature is shown anywhere in FIG. 8., nor is such a feature suggested by anything in Ng. According to claim 20, at least four vias extend directly between each first level line and corresponding second level line of a line pair. The claimed device has at least four line pairs. Thus, the device of claim 20 has a total of sixteen vias connecting the first and second level lines for four line pairs. Clearly, FIG. 8 of Ng shows only 12 vias between levels, and that is for a total of eight line pairs. That is, for each set of four line pairs, the device of Ng provides only six vias.

Accordingly, for at least these additional reasons, Applicants respectfully submit that claim 20 is patentable over Ng.

CONCLUSION


In view of the foregoing explanations, Applicants respectfully request that the Examiner allow claims 1-20 and pass the application to issue. In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Kenneth D. Springer (Reg. No. 39,843) at (703) 715-0870 to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment (except for the issue fee) to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17, particularly extension of time fees.

Respectfully submitted,

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